



MISSISSIPPI STATE DEPARTMENT OF HEALTH

Ebola Virus Disease

Personal Protective Equipment Recommendations

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Personal Protective Equipment Recommendations

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Personal Protective Equipment¹: Introduction

Healthcare workers must be trained in advance on all PPE recommended in your facility's protocols. Healthcare workers should practice donning and doffing procedures and must demonstrate during the training process competency through testing and assessment before caring for Ebola patients.

MSDH recommends that Mississippi hospitals follow CDC's recommendations on the use of PPE and PPE donning and doffing instructions <http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>.

For reusable PPE follow the manufacturer's instructions for decontamination. Single-use (disposable) PPE must be disposed of according to your facility's protocol. Please see the appendix section for donning and doffing checklists, patient log form and visual aids related to PPE.

A trained observer who will serve as a donning partner to monitor for correct PPE use and adherence to protocols for donning and doffing PPE, and guide healthcare workers at each point of use using a checklist for every donning and doffing procedure must be identified in advance of donning.

Recommended Personal Protective Equipment

1. PAPR or N95 Respirator²
 - PAPR: with a full face shield, helmet, or headpiece.
 - A PAPR with a self-contained filter and blower unit integrated inside the helmet is preferred.
 - A PAPR with external belt-mounted blower unit requires adjustment of the sequence for donning and doffing, as described below.
 - or
 - N95 Respirator: Single-use (disposable) N95 respirator
2. Single-use (disposable) surgical hood that extends to the shoulders and fully covers the neck.
3. Single-use (disposable) full face shield preferred, goggles which wrap around the face may be used as eye protection if face shield is unavailable.

Warning

The use of goggles may cause the tendency of adjustment. Once PPE is properly donned it should not be adjusted.

A full face shield may not provide full face protection in the setting of significant splashing.

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4. Single-use (disposable) fluid-resistant or impermeable coveralls with or without integrated socks.

or

Single-use (disposable) fluid-resistant or impermeable gown that extends to at least mid-calf is acceptable.

Coveralls or gowns with thumb hooks are preferred to secure sleeves over inner glove. Personnel may consider taping the sleeve of the gown or coverall over the inner glove to prevent potential skin exposure from separation between sleeve and inner glove during activity.

Warning

While taping may be recommended for some interfaces, it is important to use tape that does not degrade protection. For example, when tape is removed during doffing (particularly a tape with strong adhesive such as duct tape) it can cause a tear in the garment. Experience in some facilities suggests that taping may increase risk by making the doffing process more difficult and cumbersome. N95 respirators should never be taped to the hood of a protective coverall or other PPE – this can disrupt the fit of the respirator, which affects its protective performance.

5. One pair of single-use (disposable) nitrile examination gloves with extended cuffs.
6. One pair of single-use (disposable) nitrile examination gloves.
7. Single-use (disposable), fluid-resistant or impermeable boot covers that extend to at least mid-calf.

or

Single-use (disposable) fluid-resistant or impermeable shoe covers, acceptable only if they will be used in combination with a coverall with integrated socks.

8. Single-use (disposable), fluid-resistant or impermeable apron that covers the torso to the level of the mid-calf.
9. Scrubs.
10. Closed, puncture and fluid resistant shoes dedicated to unit.

Donning of PPE

Prior to Donning PPE

Identify a PPE Storage and Donning Area- This is a designated area outside the Ebola patient room it may be a nearby vacant patient room or a marked area in the hallway outside the patient room where clean PPE is stored and where healthcare workers can don PPE before entering the

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patient's room. Do not store potentially contaminated equipment, used PPE, or waste removed from the patient's room in this area.

1. Identify a trained observer who will serve as a donning partner.
2. Consume 6-8 fluid ounces.
3. Remove all jewelry.
4. Secure hair away from face.
5. Put on scrubs and closed, puncture and fluid resistant shoes.
6. Go to toilet.
7. Gather all the necessary items of PPE.
8. Both the healthcare worker and donning partner should visually inspect the PPE ensemble to be worn to ensure that it is in serviceable condition and that the sizes selected are correct for the healthcare worker.
9. Vital signs should be taken and recorded on the donning PPE checklist.
10. Take PPE and checklist into the donning area (clean area).

Donning of PPE; PAPR Option

In the PPE donning area (clean area):

1. Perform hand hygiene with at least a 60% alcohol based hand rub (ABHR). When using ABHR, allow hands to dry before moving to next step.
2. Put on Inner Gloves: Put on first pair of gloves.
3. Put on Boot or Shoe Covers.
4. Put on Coverall or Gown: Ensure gown or coverall is large enough to allow unrestricted freedom of movement. Ensure cuffs of inner gloves are tucked under the sleeve of the gown or coverall
 - a. If a PAPR with a self-contained filter and blower unit that is integrated inside the helmet is used, then the belt and battery unit must be put on prior to donning the impermeable gown or coverall so that the belt and battery unit are contained under the gown or coverall.
 - b. If a PAPR with external belt-mounted blower is used, then the blower and tubing must be on the outside of gown or coverall to ensure proper airflow.
5. Put on Outer Gloves: Put on second pair of gloves (with extended cuffs). Ensure the cuffs are pulled over the sleeves of the gown or coverall
6. Put on Respirator: Put on PAPR with a full face-shield, helmet, or headpiece
 - a. If a PAPR with a self-contained filter and blower unit integrated inside the helmet is used, then a single-use (disposable) hood that extends to the shoulders and fully covers the neck must also be used. Be sure that the hood covers all of the hair and the ears, and that it extends past the neck to the shoulders.

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- b. If a PAPR with external belt-mounted blower unit and attached reusable headpiece is used, then a single-use (disposable) hood that extends to the shoulders and fully covers the neck must also be used. Be sure that the hood covers all of the hair and the ears, and that it extends past the neck to the shoulders.
7. Put on Outer Apron: Put on full-body apron to provide additional protection to the front of the body against exposure to body fluids or excrement from the patient.
8. Verify: After completing the donning process, the integrity of the ensemble is verified by the trained observer. The healthcare worker should be comfortable and able to extend the arms, bend at the waist, and go through a range of motions to ensure there is sufficient range of movement while all areas of the body remain covered. A mirror in the room can be useful for the healthcare worker while donning PPE.
9. Disinfect Outer Gloves: Disinfect outer-gloved hands with ABHR. Allow to dry prior to patient contact.

No skin should be visible at the end of the donning process. The selected PPE must be donned in the correct order in order to provide an effective protection against contact with individuals with Ebola Virus Disease or contamination. The specific donning order depends on the PPE items comprising the ensemble, as the donning process is affected by how interfaces are formed. All PPE should be donned in accordance with an established SOP, under supervision of another trained team member (donning partner).

Donning of PPE; N95 Option

This donning procedure assumes the facility has elected to use N95 respirators. Employees using a N95 must have been previously fit-tested for its use. Follow your hospital's established protocol to facilitate training and compliance. Use a trained donning observer to verify successful compliance with the protocol.

In the PPE donning area (clean area):

1. Perform Hand Hygiene with ABHR. When using ABHR, allow hands to dry before moving to next step.
2. Put on Inner Gloves: Put on first pair of gloves.
3. Put on Boot or Shoe Covers.
4. Put on Coverall or gown: Ensure coverall or gown is large enough to allow unrestricted freedom of movement. Ensure cuffs of inner gloves are tucked under the sleeve of the gown or coverall.
5. Put on N95 Respirator: Put on N95 respirator. Complete a user seal check.
6. Put on Surgical Hood: Over the N95 respirator, place a surgical hood that covers all of the hair and the ears, and ensure that it extends past the neck to the shoulders. Be certain that hood completely covers the ears and neck.

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7. Put on Outer Apron: Put on full-body apron to provide additional protection to the front of the body against exposure to body fluids or excrement from the patient.
8. Put on Outer Gloves: Put on second pair of gloves (with extended cuffs). Ensure the cuffs are pulled over the sleeves of the gown or coverall.
9. Put on Face Shield: Put on full face shield over the N95 respirator and surgical hood to provide additional protection to the front and sides of the face, including skin and eyes.
10. Verify: After completing the donning process, the integrity of the ensemble is verified by the trained observer. The healthcare worker should be comfortable and able to extend the arms, bend at the waist and go through a range of motions to ensure there is sufficient range of movement while all areas of the body remain covered. A mirror in the room can be useful for the healthcare worker while donning PPE.
11. Disinfect Outer Gloves: Disinfect outer-gloved hands with ABHR. Allow to dry prior to patient contact.

No skin should be visible at the end of the donning process. The selected PPE must be donned in the correct order in order to provide an effective protection against contact with individuals with Ebola Virus Disease or contamination. The specific donning order depends on the PPE items comprising the ensemble, as the donning process is affected by how interfaces are formed. All PPE should be donned in accordance with an established SOP, under supervision of another trained team member (donning partner).

Doffing of PPE

Recommended PPE for Trained Observer

The trained observer should not enter the room of a patient with Ebola, but will be in the PPE removal area to observe and assist with removal of specific components of PPE, as outlined below. The observer should not participate in any Ebola patient care activities while conducting observations. The following PPE are recommended for trained observers:

1. Single-use (disposable) fluid-resistant or impermeable gown that extends to at least mid-calf or coverall without integrated hood.
2. Single-use (disposable) full face shield.
3. Single-use (disposable) nitrile examination gloves with extended cuffs. Two pairs of gloves should be worn. At a minimum, outer gloves should have extended cuffs.
4. Single-use (disposable) fluid-resistant or impermeable shoe covers. Shoe covers should allow for ease of movement and not present a slip hazard to the worker.

Trained observers should doff selected PPE according to same procedures outlined below.

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Prior to Doffing PPE

Identify an area in close proximity to the patient's room (e.g., anteroom or adjacent vacant patient room that is separate from the clean area) where healthcare workers leaving the patient's room can doff and discard their PPE. Provide the following in the PPE removal area:

1. Supplies for disinfection of PPE.

Warning

Care must be taken in decontaminating PPE. Many recommended disinfectants are designed for use on surfaces rather than PPE. Improper decontamination processes or solutions can damage single-use PPE during the doffing process and cause exposure. Further, the impact of decontamination on multiple-use PPE items (e.g., respirator face pieces or the seams of multi-use garments) is not fully known. Multi-use PPE should be carefully inspected after decontamination and any deterioration monitored.

One common (and improper) approach to decontamination is the notion that increasing the strength of a bleach solution will improve effectiveness. This should NEVER be attempted when decontaminating PPE.

2. Supplies for performing hand hygiene, ³EPA-registered disinfectant wipe or ABHR.
3. Stock gloves in a clean section of the PPE removal area accessible to the healthcare worker while doffing.
4. Space to remove PPE, including a place for sitting that can be easily cleaned and disinfected, where the healthcare workers can remove boot covers.
5. Leak-proof infectious waste containers for discarding used PPE.
6. Supplies for frequent environmental cleaning and disinfection of the PPE removal area.

Note: If a facility must use the hallway outside the patient room as the PPE removal area, construct physical barriers to close the hallway to through traffic and thereby create an anteroom. In so doing, the facility should make sure that this hallway space complies with fire-codes. Restrict access to this hallway to essential personnel who are properly trained on recommended infection prevention practices for the care of Ebola patients.

Doffing of PPE; PAPR Option

Before entering the PPE removal area, inspect and disinfect (using an EPA-registered disinfectant wipe) any visible contamination on the PPE. As a final step, disinfect outer-gloved hands with either an EPA-registered disinfectant wipe or ABHR, and allow to dry. Verify that the trained observer is available in the PPE removal area before entering and beginning the PPE

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removal process. The doffing process is conducted under the supervision of a trained observer, who reads aloud each step of the procedure and confirms visually that the PPE is removed properly. Prior to doffing PPE, the trained observer must remind the healthcare worker to avoid reflexive actions that may put them at risk, such as touching their face. Post this instruction and repeat it verbally during doffing. Although the trained observer should minimize touching the healthcare worker or the healthcare worker's PPE during the doffing process, the trained observer may assist with removal of specific components of PPE, as outlined below. The trained observer disinfects the outer-gloved hands immediately after handling any healthcare worker PPE. All PPE waste must be placed in a leak-proof infectious waste container.

In the PPE removal area (anteroom):

1. The trained observer and healthcare worker will both inspect the PPE to assess for visible contamination, cuts, or tears before starting to remove. If any PPE is potentially contaminated, then disinfect using an EPA-registered disinfectant wipe.
2. Disinfect outer-gloved hands with either an EPA-registered disinfectant wipe or ABHR, and allow to dry.

Important

Disinfection of gloves/hand hygiene must be performed with an EPA-registered disinfectant wipe or ABHR immediately after each step in the doffing process.

If the trained observer assists with PPE doffing, then the trained observer should disinfect outer-gloved hands with an EPA-registered disinfectant wipe or ABHR immediately after contact with healthcare worker's PPE.

3. Remove apron taking care to avoid contaminating gloves by rolling the apron from inside to outside. Discard apron.

Important

The outer layer of PPE must never come into contact with the next successive inner layer of PPE.

4. Following apron removal, inspect the PPE ensemble to assess for visible contamination or cuts or tears. If visibly contaminated, then disinfect affected PPE using an EPA-registered disinfectant wipe.
5. Disinfect outer-gloved hands with either an EPA-registered disinfectant wipe or ABHR.
6. While sitting down, remove and discard boot or shoe covers.
7. Disinfect outer-gloved hands with either an EPA-registered disinfectant wipe or ABHR.

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8. Inspect the inner gloves' outer surfaces for visible contamination, cuts, or tears. If an inner glove is visibly soiled, cut, or torn, then disinfect the glove with either an EPA-registered disinfectant wipe or ABHR. Then remove the inner gloves, perform hand hygiene with ABHR on bare hands, and don a clean pair of gloves. If no visible contamination, cuts, or tears are identified on the inner gloves, then disinfect the inner-gloved hands with either an *EPA-registered disinfectant wipe or ABHR.
9. Remove Respirator (PAPR):
 - a. If a PAPR with a self-contained filter and blower unit integrated inside the helmet is used, then wait until Step 14 for removal and go to Step 10.
 - b. If a PAPR with an external belt-mounted blower unit is used, then all components must be removed at this step.
 - i. Remove and discard disposable hood.
 - ii. Disinfect inner gloves with either an *EPA-registered disinfectant wipe or ABHR.
 - iii. Remove headpiece, blower, tubing, and the belt and battery unit. This step might require assistance from the trained observer.
 - iv. Disinfect inner gloves with either an *EPA-registered disinfectant wipe or ABHR.
 - v. Place all reusable PAPR components in an area or container designated for the collection of PAPR components for disinfection.
10. Remove Coverall or Gown:
 - a. To remove coverall, tilt head back and reach under the PAPR hood to reach zipper or fasteners. Use a mirror to help avoid touching the skin. Unzip or unfasten coverall completely before rolling down and turning inside out. Avoid contact of scrubs with outer surface of coverall during removal, touching only the inside of the coverall. Discard coverall in proper container.
 - b. Depending on gown design and location of fasteners, the healthcare worker can either untie fasteners, receive assistance by the trained observer to unfasten the gown, or gently break fasteners. Avoid contact of scrubs or disposable garments with outer surface of gown during removal. Pull gown away from body, rolling inside out and touching only the inside of the gown. Discard gown in proper container.
11. Disinfect inner gloves with either an EPA-registered disinfectant wipe or ABHR

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12. Sitting on a new clean surface (e.g., second clean chair, clean side of a bench) use an EPA-registered disinfectant wipe to wipe down every external surface of the washable shoes.
13. Disinfect inner gloves with either an EPA-registered disinfectant wipe or ABHR.
14. Remove Respirator (if not already removed): If a PAPR with a self-contained filter and blower unit that is integrated inside helmet is used, then remove all components.
 - a. Remove and discard disposable hood
 - b. Disinfect inner gloves with either an EPA-registered disinfectant wipe or ABHR
 - c. Remove and discard inner gloves taking care not to contaminate bare hands during removal process
 - d. Perform hand hygiene with ABHR
 - e. Don a new pair of inner gloves
 - f. Remove helmet and the belt and battery unit. This step might require assistance from the trained observer.
15. Disinfect and Remove Inner Gloves: Disinfect inner-gloved hands with either an EPA-registered disinfectant wipe or ABHR. Remove and discard gloves taking care not to contaminate bare hands during removal process.
16. Perform hand hygiene with ABHR.
17. Perform a final inspection of healthcare worker for any indication of contamination of the surgical scrubs or disposable garments. If contamination is identified, immediately inform infection preventionist or occupational safety and health coordinator or their designee before exiting PPE removal area.
18. Healthcare worker can leave PPE removal area wearing dedicated washable footwear and surgical scrubs or disposable garments.

Showers are recommended at each shift's end for healthcare workers performing high-risk patient care (e.g., exposed to large quantities of blood, body fluids, or excreta). Showers are also suggested for healthcare workers spending extended periods of time in the Ebola patient room.

Doffing of PPE; N95 Option

Before entering the PPE removal area, inspect and disinfect (using an EPA-registered disinfectant wipe) any visible contamination on the PPE. As a final step, disinfect outer-gloved hands with either an *EPA-registered disinfectant wipe or ABHR, and allow to dry. Verify that the trained observer is available in the PPE removal area before entering and beginning the PPE removal process. The doffing process is conducted under the supervision of a trained observer,

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who reads aloud each step of the procedure and confirms visually that the PPE is removed properly. Prior to doffing PPE, the trained observer must remind the healthcare worker to avoid reflexive actions that may put them at risk, such as touching their face. Post this instruction and repeat it verbally during doffing. Although the trained observer should minimize touching the healthcare worker or the healthcare worker's PPE during the doffing process, the trained observer may assist with removal of specific components of PPE, as outlined below. The trained observer disinfects the outer-gloved hands immediately after handling any healthcare worker PPE. All PPE waste must be placed in a leak-proof infectious waste container.

In the PPE removal area (anteroom):

1. Inspect the PPE to assess for visible contamination, cuts, or tears before starting to remove. If any PPE is potentially contaminated, then disinfect using an EPA-registered disinfectant wipe.
2. Disinfect outer-gloved hands with either an EPA-registered disinfectant wipe or ABHR, and allow to dry.

Important

Disinfection of gloves/hand hygiene must be performed with an EPA-registered disinfectant wipe or ABHR immediately after each step in the doffing process.

If the trained observer assists with PPE doffing, then the trained observer should disinfect outer-gloved hands with an EPA-registered disinfectant wipe or ABHR immediately after contact with healthcare worker's PPE.

3. Remove apron taking care to avoid contaminating gloves by rolling the apron from inside to outside. Discard apron.

Important

The outer layer of PPE must never come into contact with the next successive inner layer of PPE.

4. Following apron removal, inspect the PPE ensemble to assess for visible contamination or cuts or tears. If visibly contaminated, then disinfect affected PPE using an EPA-registered disinfectant wipe.
5. Disinfect outer-gloved hands with either an EPA-registered disinfectant wipe or ABHR.
6. While sitting down, remove and discard boot *or* shoe covers.

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7. Disinfect outer-gloved hands with either an EPA-registered disinfectant wipe or ABHR.
8. Inspect the inner gloves' outer surfaces for visible contamination, cuts, or tears. If an inner glove is visibly soiled, cut, or torn, then disinfect the glove with either an EPA-registered disinfectant wipe or ABHR. Then remove the inner gloves, perform hand hygiene with ABHR on bare hands, and don a clean pair of gloves. If no visible contamination, cuts, or tears are identified on the inner gloves, then disinfect the inner-gloved hands with either an EPA-registered disinfectant wipe or ABHR.
9. Remove the full face shield by tilting the head slightly forward, grabbing the rear strap and pulling it over the head, gently allowing the face shield to fall forward and discard. Avoid touching the front surface of the face shield.
10. Disinfect inner gloves with either an EPA-registered disinfectant wipe or ABHR.
11. Unfasten (if applicable) surgical hood, gently remove, and discard. The trained observer may assist with unfastening hood.
12. Disinfect inner gloves with either an EPA-registered disinfectant wipe or ABHR.
13. Remove Coverall or Gown:
 - a. To remove coverall, tilt head back and reach under the PAPR hood to reach zipper or fasteners. Use a mirror to help avoid touching the skin. Unzip or unfasten coverall completely before rolling down and turning inside out. Avoid contact of scrubs with outer surface of coverall during removal, touching only the inside of the coverall. Discard coverall in proper container.
 - b. Depending on gown design and location of fasteners, the healthcare worker can either untie fasteners, receive assistance by the trained observer to unfasten the gown, or gently break fasteners. Avoid contact of scrubs or disposable garments with outer surface of gown during removal. Pull gown away from body, rolling inside out and touching only the inside of the gown. Discard gown in proper container.
14. Disinfect inner gloves with either an EPA-registered disinfectant wipe or ABHR.
Remove and discard gloves taking care not to contaminate bare hands during removal process. Perform hand hygiene with ABHR. Don a new pair of inner gloves.
15. Remove the N95 respirator by tilting the head slightly forward, grasping first the bottom tie or elastic strap, then the top tie or elastic strap, and remove without touching the front of the N95 respirator. Discard N95 respirator.
16. Disinfect inner gloves with either an EPA-registered disinfectant wipe or ABHR

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17. Sitting on a new clean surface (e.g., second clean chair, clean side of a bench) use an EPA-registered disinfectant wipe to wipe down every external surface of the washable shoes.
18. Disinfect inner-gloved hands with either an EPA-registered disinfectant wipe or ABHR. Remove and discard gloves taking care not to contaminate bare hands during removal process.
19. Perform hand hygiene with ABHR.
20. Perform a final inspection of healthcare worker for any indication of contamination of the surgical scrubs or disposable garments. If contamination is identified, immediately inform infection preventionist or occupational safety and health coordinator or their designee before exiting PPE removal area.
21. Healthcare worker can leave PPE removal area wearing dedicated washable footwear and surgical scrubs or disposable garments.

Showers are recommended at each shift's end for healthcare workers performing high-risk patient care (e.g., exposed to large quantities of blood, body fluids, or excreta). Showers are also suggested for healthcare workers spending extended periods of time in the Ebola patient room.

For up to date information on guidance on donning and doffing please see <http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>

Decontamination of PPE

The facility should follow manufacturer's instructions for decontamination of all reusable PPE components and, based upon those instructions, develop facility protocols that include the designation of responsible personnel who assure that the equipment is appropriately reprocessed.

Footnotes

¹All recommend PPE may be unavailable in all clinical settings, the use of a minimum PPE (double gloves, head covering, eye protection, face mask, protective coveralls or gown, apron, protective foot care) is recommended. Ebola virus is not spread through the air – making physical distance (maintaining > 3 feet separation) an additional approach. It is important to remember that Ebola is spread only through direct contact with infectious bodily secretions (such as blood, vomitus or diarrhea) and patients are minimally contagious early in the course of illness.

²If a NIOSH-certified PAPR and a NIOSH-certified fit-tested disposable N95 respirator is used in facility protocols, ensure compliance with all elements of the OSHA Respiratory Protection

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Standard, 29 CFR 1910.134, including fit testing, medical evaluation, and training of the healthcare worker.

³EPA-registered disinfectant wipe: Use a disposable wipe impregnated with a U.S. Environmental Protection Agency (EPA)-registered hospital disinfectant with a label claim of potency at least equivalent to that for a non-enveloped virus (e.g., norovirus, rotavirus, adenovirus, poliovirus).

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Appendix I Donning of PPE Checklist; PAPR Option

Hospital Name:		
Person Being Donned Information		
Employee Name:		
Employee Identification Number (if applicable):		
Date and Time:		
Vital Signs- Mandatory Completion before Donning		
Temperature:		Pulse:
Respiration:		Blood Pressure:
Donning Partner Information		
Donning Partner Name:		
Donning Partner Employee Identification Number (if applicable):		
Instructions: Donning partner will check off each step as healthcare worker completes task		
Step	Task	Completed
1.	Perform Hand Hygiene	
2.	Put on Inner Gloves	
3.	Put on Boot or Shoe Covers	
4.	Put on Coverall or Gown	
5.	Put on Outer Gloves	
6.	Put on Respirator	
7.	Put on Outer Apron	
8.	Verify the integrity of the ensemble	
9.	Disinfect Outer Gloves	

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Appendix II Donning of PPE Checklist; N95 Option

Hospital Name:		
Person Being Donned Information		
Employee Name:		
Employee Identification Number (if applicable):		
Date and Time:		
Vital Signs- Mandatory Completion before Donning		
Temperature:		Pulse:
Respiration:		Blood Pressure:
Donning Partner Information		
Donning Partner Name:		
Donning Partner Employee Identification Number (if applicable):		
Instructions: Donning partner will check off each step as healthcare worker completes task		
Step	Task	Completed
1.	Perform Hand Hygiene	
2.	Put on Inner Gloves	
3.	Put on Boot or Shoe Covers	
4.	Put on Coverall or Gown	
5.	Put on N95 Respirator	
6.	Put on Surgical Hood	
7.	Put on Outer Apron	
8.	Put on Outer Gloves	
9.	Put on Face Shield	
10.	Verify the integrity of the ensemble	
11.	Disinfect Outer Gloves	

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Appendix III Doffing of PPE Checklist; PAPR Option

Hospital Name:		
Person Being Doffed Information		
Employee Name:		
Employee Identification Number (if applicable):		
Date and Time:		
Doffing Partner Information		
Doffing Partner Name:		
Doffing Partner Employee Identification Number (if applicable):		
Instructions: Doffing partner will check off each step as healthcare worker completes task		
Step	Task	Completed
1.	The trained observer and healthcare worker will both inspect the PPE to assess for visible contamination, cuts, or tears before starting to remove. If any PPE is potentially contaminated, then disinfect using an EPA-registered disinfectant wipe.	
2.	Disinfect outer-gloved hands with either an EPA-registered disinfectant wipe or ABHR, and allow to dry.	
3.	Remove apron taking care to avoid contaminating gloves by rolling the apron from inside to outside. Discard apron.	
4.	Inspect the PPE ensemble to assess for visible contamination or tears. If visibly contaminated, disinfect affected PPE using an EPA-registered disinfectant wipe.	
5.	Disinfect outer-gloved hands with an EPA-registered disinfectant wipe or ABHR.	
6.	While sitting down, remove and discard boot or shoe covers.	
7.	Disinfect outer-gloved hands with either an EPA-registered disinfectant wipe or ABHR.	
8.	Inspect the inner gloves' outer surfaces for visible contamination, cuts, or tears. If an inner glove is visibly soiled, cut, or torn, disinfect the glove with an EPA-registered disinfectant wipe or ABHR. Then remove the inner gloves, perform hand hygiene with ABHR on bare hands, and don a clean pair of gloves. If no visible contamination, cuts, or tears are identified on the inner gloves, disinfect the inner-gloved hands with either an EPA-registered disinfectant wipe or ABHR.	
9.	Remove Respirator (PAPR): <ol style="list-style-type: none"> If a PAPR with a self-contained filter and blower unit integrated inside the helmet is used, then wait until Step 14 for removal and go to Step 10. If a PAPR with an external belt-mounted blower unit is used, then all components must be removed at this step. <ol style="list-style-type: none"> Remove and discard disposable hood. Disinfect inner gloves with either an EPA-registered disinfectant wipe or ABHR. Remove headpiece, blower, tubing, and the belt and battery unit. This step might require assistance from the trained observer. Disinfect inner gloves with an EPA-registered disinfectant wipe or ABHR. Place all reusable PAPR components in an area or container designated for the collection of PAPR components for disinfection. 	
10.	Remove Coverall or Gown: <ol style="list-style-type: none"> To remove coverall, tilt head back and reach under the PAPR hood to reach zipper or fasteners. Use a mirror to help avoid touching the skin. Unzip or unfasten coverall completely before rolling down and turning inside out. 	

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	<p>Avoid contact of scrubs with outer surface of coverall during removal, touching only the inside of the coverall. Discard coverall in proper container.</p> <p>b) Depending on gown design and location of fasteners, the healthcare worker can either untie fasteners, receive assistance by the trained observer to unfasten the gown, or gently break fasteners. Avoid contact of scrubs or disposable garments with outer surface of gown during removal. Pull gown away from body, rolling inside out and touching only the inside of the gown. Discard gown in proper container.</p>	
11.	Disinfect inner gloves with an EPA-registered disinfectant wipe or ABHR	
12.	Sitting on a new clean surface (e.g., second clean chair, clean side of a bench) use an EPA-registered disinfectant wipe to wipe down every external surface of the washable shoes.	
13.	Disinfect inner gloves with an EPA-registered disinfectant wipe or ABHR.	
14.	<p>Remove Respirator (if not already removed): If a PAPR with a self-contained filter and blower unit that is integrated inside helmet is used, then remove all components.</p> <p>a) Remove and discard disposable hood</p> <p>b) Disinfect inner gloves with an EPA-registered disinfectant wipe or ABHR</p> <p>c) Remove and discard inner gloves taking care not to contaminate bare hands during removal process</p> <p>d) Perform hand hygiene with ABHR</p> <p>e) Don a new pair of inner gloves</p> <p>f) Remove helmet and the belt and battery unit. This step might require assistance from the trained observer.</p>	
15.	Disinfect and Remove Inner Gloves: Disinfect inner-gloved hands with an EPA-registered disinfectant wipe or ABHR. Remove and discard gloves taking care not to contaminate bare hands during removal process.	
16.	Perform hand hygiene with ABHR.	
17.	Perform a final inspection of healthcare worker for any indication of contamination of the surgical scrubs or disposable garments. If contamination is identified, immediately inform infection preventionist or occupational safety and health coordinator or their designee before exiting PPE removal area.	
18.	Healthcare worker can leave PPE removal area wearing dedicated washable footwear and surgical scrubs or disposable garments.	
Vital Signs- Mandatory Completion after Doffing		
Temperature:		Pulse:
Respiration:		Blood Pressure:
Showers are recommended at each shift's end for healthcare workers performing high-risk patient care (e.g., exposed to large quantities of blood, body fluids, or excreta). Showers are also suggested for healthcare workers spending extended periods of time in the Ebola patient room.		
Doffing partner seals and disposes of PPE per hospital's biohazard waste guidelines		

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Appendix IV Doffing of PPE Checklist; N95 Option

Hospital Name:		
Person Being Doffed Information		
Employee Name:		
Employee Identification Number (if applicable):		
Date and Time:		
Doffing Partner Information		
Doffing Partner Name:		
Doffing Partner Employee Identification Number (if applicable):		
Instructions: Doffing partner will check off each step as healthcare worker completes task		
Step	Task	Completed
1.	The trained observer and healthcare worker will both inspect the PPE to assess for visible contamination, cuts, or tears before starting to remove. If any PPE is potentially contaminated, then disinfect using an EPA-registered disinfectant wipe.	
2.	Disinfect outer-gloved hands with either an EPA-registered disinfectant wipe or ABHR, and allow to dry.	
3.	Remove apron taking care to avoid contaminating gloves by rolling the apron from inside to outside. Discard apron.	
4.	Following apron removal, inspect the PPE ensemble to assess for visible contamination or cuts or tears. If visibly contaminated, then disinfect affected PPE using an EPA-registered disinfectant wipe.	
5.	Disinfect outer-gloved hands with either an EPA-registered disinfectant wipe or ABHR.	
6.	While sitting down, remove and discard boot or shoe covers.	
7.	Disinfect outer-gloved hands with either an EPA-registered disinfectant wipe or ABHR.	
8.	Inspect the inner gloves' outer surfaces for visible contamination, cuts, or tears. If an inner glove is visibly soiled, cut, or torn, then disinfect the glove with either an EPA-registered disinfectant wipe or ABHR. Then remove the inner gloves, perform hand hygiene with ABHR on bare hands, and don a clean pair of gloves. If no visible contamination, cuts, or tears are identified on the inner gloves, then disinfect the inner-gloved hands with either an *EPA-registered disinfectant wipe or ABHR.	
9.	Remove the full face shield by tilting the head slightly forward, grabbing the rear strap and pulling it over the head, gently allowing the face shield to fall forward and discard. Avoid touching the front surface of the face shield.	
10.	Disinfect inner gloves with either an EPA-registered disinfectant wipe or ABHR.	
11.	Unfasten (if applicable) surgical hood, gently remove, and discard. The trained observer may assist with unfastening hood.	
12.	Disinfect inner gloves with either an EPA-registered disinfectant wipe or ABHR.	
13.	Remove Coverall or Gown: <ul style="list-style-type: none"> a) To remove coverall, tilt head back and reach under the PAPR hood to reach zipper or fasteners. Use a mirror to help avoid touching the skin. Unzip or unfasten coverall completely before rolling down and turning inside out. Avoid contact of scrubs with outer surface of coverall during removal, touching only the inside of the coverall. Discard coverall in proper container. b) Depending on gown design and location of fasteners, the healthcare worker can either untie fasteners, receive assistance by the trained observer to unfasten the gown, or gently break fasteners. Avoid contact of scrubs or disposable garments with outer surface of gown during removal. Pull gown away from body, rolling inside out and touching only the inside of the gown. 	

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	Discard gown in proper container.	
14.	Disinfect inner gloves with either an EPA-registered disinfectant wipe or ABHR. Remove and discard gloves taking care not to contaminate bare hands during removal process. Perform hand hygiene with ABHR. Don a new pair of inner gloves.	
15.	Remove the N95 respirator by tilting the head slightly forward, grasping first the bottom tie or elastic strap, then the top tie or elastic strap, and remove without touching the front of the N95 respirator. Discard N95 respirator.	
16.	Disinfect inner gloves with either an EPA-registered disinfectant wipe or ABHR	
17.	Sitting on a new clean surface (e.g., second clean chair, clean side of a bench) use an EPA-registered disinfectant wipe to wipe down every external surface of the washable shoes.	
18.	Disinfect and Remove Inner Gloves: Disinfect inner-gloved hands with either an EPA-registered disinfectant wipe or ABHR. Remove and discard gloves taking care not to contaminate bare hands during removal process.	
19.	Perform hand hygiene with ABHR.	
20.	Perform a final inspection of healthcare worker for any indication of contamination of the surgical scrubs or disposable garments. If contamination is identified, immediately inform infection preventionist or occupational safety and health coordinator or their designee before exiting PPE removal area.	
21.	Healthcare worker can leave PPE removal area wearing dedicated washable footwear and surgical scrubs or disposable garments.	
Vital Signs- Mandatory Completion after Doffing		
Temperature:		Pulse:
Respiration:		Blood Pressure:
Showers are recommended at each shift's end for healthcare workers performing high-risk patient care (e.g., exposed to large quantities of blood, body fluids, or excreta). Showers are also suggested for healthcare workers spending extended periods of time in the Ebola patient room.		
Doffing partner seals and disposes of PPE per hospital's biohazard waste guidelines		